Kahila, M. **Scaling up social cohesion and sustainability with participatory mapping**

Case Study Report

Scaling up social cohesion and sustainability with participatory mapping

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Abstract

Although participatory mapping and community engagement are now widely accepted methods of enhancing the democratic aims of community and urban development, certain challenges remain. Urban planners and developers lack the knowledge of usable ways to reach broader groups of participants. Without these tools, participation can turn into a small elitist activity. Also, the quality and utilisation of the knowledge produced are problematic: the collected data remains invisible and systematic analysis is often not realised.

This paper sheds light on online methods for inclusive planning, value diversity, secure accessibility, and affordability that also streamline the planning process. The case studies present public participatory GIS (PPGIS) tools as one of the planning practices employed to build smarter communication and community engagement strategies in the cities where the demand for interaction among people and various stakeholders is growing. Through critical analysis and reflection, the case studies examine the ability of PPGIS tools to (1) enhance effective arrangements of public participation, (2) achieve socio-spatial justice by reaching a broad spectrum of people, and 3) produce high-quality and versatile knowledge.

The data is gathered from multiple projects implemented with a PPGIS tool Maptionnaire during the past decade, and special attention is given to a case from the Finnish city of Vantaa. Maptionnaire's scope amounts to over 13000 customer projects that have mainly involved the development of more sustainable urban and communal structures and the organisation of more efficient and transparent engagement processes. This practical evidence of using PPGIS tools for a variety of urban planning projects will enable planners to implement more inclusive and people-centred urban and regional planning in the future.

Keywords

community engagement, participatory mapping, people-centred urban planning, public participation GIS

1. Introduction

Nowadays urban planning faces the challenge of developing and creating living environments that are sustainable, equitable, and promotive of residents' well-being. This goal cannot be achieved with a top-down approach of striving after the "common good for all" that was traditionally practised by urban planners. Urban planning requires sensitivity and inclusiveness as its actions design and alter the experiential landscape of citizens.

Therefore multiple cities globally are adopting democratic planning practices that would allow them to shape living environments in a way that meets the goals of sustainability, resilience, and equity — without reducing those qualities of urban environments that citizens value the most.

Public participation is the cornerstone of this democratic approach to urban planning. Digitalisation has had a significant impact on participation and communication mechanisms and on the possibility to integrate the differing voices of plural society more efficiently into current planning practices. The old infrastructure that has enabled the face-to-face participation of inhabitants has taken new forms through social media and other information and communication technologies (ICT) like public participation geographic information systems (PPGIS). In other words, citizens should be included in the smart city structure (cf. Saad-Sulonen, 2014; Faehnle, 2014).

This paper sheds light on online methods for inclusive planning, value diversity, secure accessibility, and affordability that also streamline the planning process. The first part of the case study presents PPGIS tools as one of the planning practices used for building smarter communication and community engagement strategies in the cities where the demand for interaction among people and various stakeholders is growing. The second part discusses the internal processes and benefits of implementing a PPGIS tool Maptionnaire on the city-wide level in Vantaa as well as its influence on participation opportunities and equity. Overall, the presented cases reveal that PPGIS tools equip planners with capabilities that promote sustainability and social cohesion required for co-creating better places.

2. How to define co-creation: participation or collaboration?

Before the paper turns to discuss the benefits and challenges of implementing PPGIS tools in urban planning, it is necessary to outline the problems urban planners face when it comes to co-creating living environments with residents. One fundamental challenge in organising participation in urban planning is the gap between the two very different communicative forms of action, i.e. participation and collaboration (refer to Staffans et al. 2018 for a more in-depth discussion of the topic).

While participation is a right of any individual to partake in societal processes, collaboration refers to a mode of working together. Participation as communication can be one-way but collaboration needs to be two-way (Fig. 1). Hence it is important to understand what kind of knowledge can be produced in each phase of the planning process.

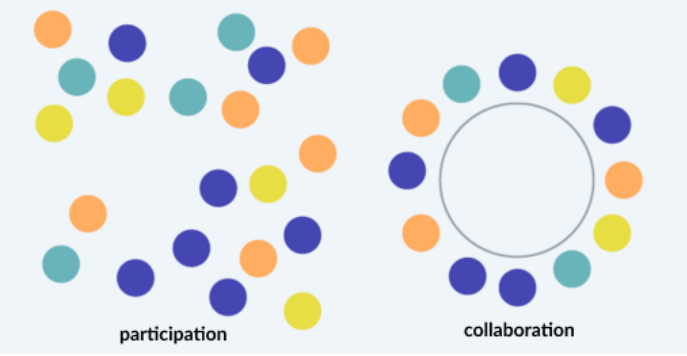

Figure 1. Participation and collaboration as different communicative actions that define the knowledge used in the planning process.

Based on how participation and collaboration are currently implemented in urban planning, it is possible to identify two approaches (Staffans et al., 2019, Kahila-Tani et al., 2019):

- Participation is wide and produces a lot of information but the data remains scattered and difficult to access by different stakeholders along the planning process.
- Collaboration in groups belongs to planning routines but does not easily catch the diverse interest of groups and professionals.

Collaborative processes, chiefly in the form of working together in groups, have become central in understanding and conducting communicative planning (Innes, 2013). However, in planning practice, this type of collaboration is often siloed. It takes place in separate processes among experts or public workshops that do not catch the diversity of citizens' needs and opinions, leading to a danger that only several interest groups are represented (Newig & Kvarda, 2012). At the same time, the outcomes of these processes are hard to integrate into the planning process.

Planners still struggle in combining broad public participation with the collaboration of the selected group of actors to systematically collect, manage and process information throughout the planning process. And even more importantly, urban planners often lack the skills to really work together with different kinds of people systematically throughout the planning process.

As Rydin mentions (2007): “It is much more difficult than often acknowledged to generate agreement between actors whose knowledge of an issue is rooted in very different experiences.” For these reasons, we need to better understand how and with whom we are working with when striving to create better living environments together. Can PPGIS tools help planners build smarter communication and community engagement strategies in the cities?

3. PPGIS in action: reflections on various examples

Public Participation Geographic Information System (PPGIS) tools provide digital means to support map-based dialogue and data collection. These tools have the potential to solve communication problems in the field of community engagement by making urban planning more inclusive with a broad and diverse group of people.

PPGIS tools have been developed increasingly during the last decade (Brown & Raymond, 2014), becoming an efficient knowledge-based method for gathering accurate and actionable place-based information for public participation practices (Brown, 2012; Brown & Kyttä, 2014). Yet the effective use of these tools in planning and decision processes lags behind due to several social and institutional constraints (Brown, 2012). PPGIS tools are often implemented as sporadic data collection interventions in participation and collaboration processes outlined above. Nevertheless, PPGIS tools have the capability for playing a larger role in urban planning projects and providing lasting support for planning processes.

Indeed, several studies (Kahila-Tani, 2015) identified that urban planners have found PPGIS tools useful for gathering background information from a broad audience during the early stages of the planning process. PPGIS tools have helped the planners to get as many as possible individuals to give their knowledge input to the process. The output comprises a large variety of data, information, knowledge, and ideas as a foundation for further planning phases (Kahila-Tani et al., 2019).

This first case study presents PPGIS tools as one of the planning practices employed in the cities where the demand for interaction among people and various stakeholders is growing. Through critical analysis and reflection, the case study examines the ability of PPGIS tools to (1) enhance effective arrangements of

public participation, (2) achieve socio-spatial justice by reaching a broad spectrum of people, and 3) produce high-quality and versatile knowledge.

The data is gathered from projects implemented with a PPGIS tool Maptionnaire during the past decade. Maptionnaire's scope amounts to over 13000 customer projects that have mainly involved the development of more sustainable urban and communal structures and the organisation of more efficient and transparent engagement processes. With the help of Maptionnaire tools, residents' experiences have been gathered to inform and support decision-making that might include areas such as redevelopment, zoning, city planning, health and well-being, nature's diversity, and energy transition.

Challenge 1: Effective arrangements of public participation

Despite the advancements in the development of digital tools, there is still a mismatch between the supply of, and the demand for, planning support tools (Schrijnen, 2010; Vonk et al., 2005). The fact that software is often developed based on limited knowledge of end-users (that is, urban planners and residents) leads to problems with the actual applicability of the tool (Vonk & Geertman, 2008).

Moreover, institutional barriers often prevent planners from effective application of PPGIS tools and public participation in general. First, local administrative tensions are caused by continuous changes in the ways urban and regional planning tasks are managed and the participation procedures governed by law (Bäcklund & Mäntysalo, 2010). Secondly, individual barriers are caused by value-systems and the hierarchy of planners within the organisation. Although innovative planning practices are often led by the most advanced planners, individual as well as institutional barriers are surmountable.

The planning sector has actively welcomed online PPGIS surveys as a new tool for participation. This mainstreaming is due to the perceived usability of online tools. Our review revealed that PPGIS methods had been successfully used on various scales and in different phases of the planning project. So far, PPGIS methods have been applied mostly in the beginning and in the end — that is, in the initiation and during evaluation phases of the planning process.

Although best practices are needed on how to deploy PPGIS also in other phases, it is possible that carefully implemented participation in the early phases of a project could reduce the need for participation in the later phases. The early adaptation of participation inherently produces trust among different partners. In the reviewed cases, planners themselves were typically the initiators of applying PPGIS methods, thus the danger of top-down participation remains (Staffans et al., 2020). However, in some cases, other public sector actors and grassroots actors also initiated participatory mapping processes.

Challenge 2: Ability to reach a broad spectrum of people

Citizens should not only be heard but also have input into matters affecting their interests and concerns (Douglass & Friedmann, 1998). Residents can submit their creative input as individuals (in their capacity as a single resident) or collectively through membership in a local association or network. Moreover, citizens who restrain from participation might have different ideas and experiences that will not be reflected in the citizen input.

There are quite a few methods for arranging participation of large groups of citizens, such as town meetings, workshops, focus groups, and interactive digital dialogues (Innes, 2004). However, the kind of pluralistic thinking that introduces a diversity of interests to support the creation of more innovative planning proposals remains rare.

PPGIS tools can help broaden public participation and bring along new groups of participants. Participatory processes arranged with PPGIS tools have a transformative power to emphasise the varying opinions available locally (Brown & Kytta, 2014) and to allow larger groups of residents to find a solution together (Surowiecki, 2004).

However, there are still problems related to online participation related to the digital divide and issues related to representativeness. Our study identified similar challenges in representativeness as in the earlier studies by Brown and Kyttä (2014) and by Czepkiewicz et al. (2017). Serious issues with representativeness typically occur when volunteers produce PPGIS data.

Challenge 3: Production of high-quality and versatile knowledge

Residents are deeply attached to their environments. According to Healey (1997), "the place where we live is 'our' place – something we identify with at a feeling level. As somewhere laden with memories, associations, hopes, and even family history, it imparts layers of meaning no outsider could even guess at. The best way to access all this is through the people who already live there." Healey (1997) also notes that the progressive challenge is therefore to acknowledge different ways of experiencing and "make sense together." When gathered together, these separate, single and scattered pieces of opinions and experiences produce data sets that can be turned into knowledge constructed through social processes (Rydin, 2007).

Although various digital tools have accelerated data gathering from residents, questions remain: Is this data of high quality? How have this data and the tools been received by planning organisations? How does the data influence the existing planning system and existing planning traditions? The "how to" of the "translation" of local knowledge enabling it to be included in the formal planning process remains an open question (e.g., see Rydin, 2007).

In terms of data quality and usability, the localised PPGIS data gathered with Maptionnaire can provide direct feedback about planning solutions and be integrated with existing GIS systems. Moreover, PPGIS tools produce highly visual data that is more easily compatible with other GIS tools used in the planning process (Kahila-Tani et al., 2015; Kahila-Tani et al., 2019). This can help recognise the residents' knowledge more equally with other datasets.

However, PPGIS data will not necessarily be more influential than knowledge produced in more traditional participation processes. To increase the reliability and usability of PPGIS data, urban planners should pay special attention to their data collection strategies.The collected data should be opened to participants and jointly analysed and debated in a deliberate process.

4. How the City of Vantaa has scaled participatory mapping

The second case study looks at a single example of the City of Vantaa in the Capital Region of Finland. This city of roughly 240,000 residents has practised community engagement both in face-to-face and digital modes. The coronavirus pandemic has especially highlighted the importance of Maptionnaire digital PPGIS tool for running community engagement. According to Participation Coordinator Yu-Yi Huynh, "the situation has encouraged experts to think and change their methods of working. Right from the get-go, we transferred several resident meetings and workshops to our online service, which we have built with the help of Maptionnaire PPGIS service (Fig. 2)."

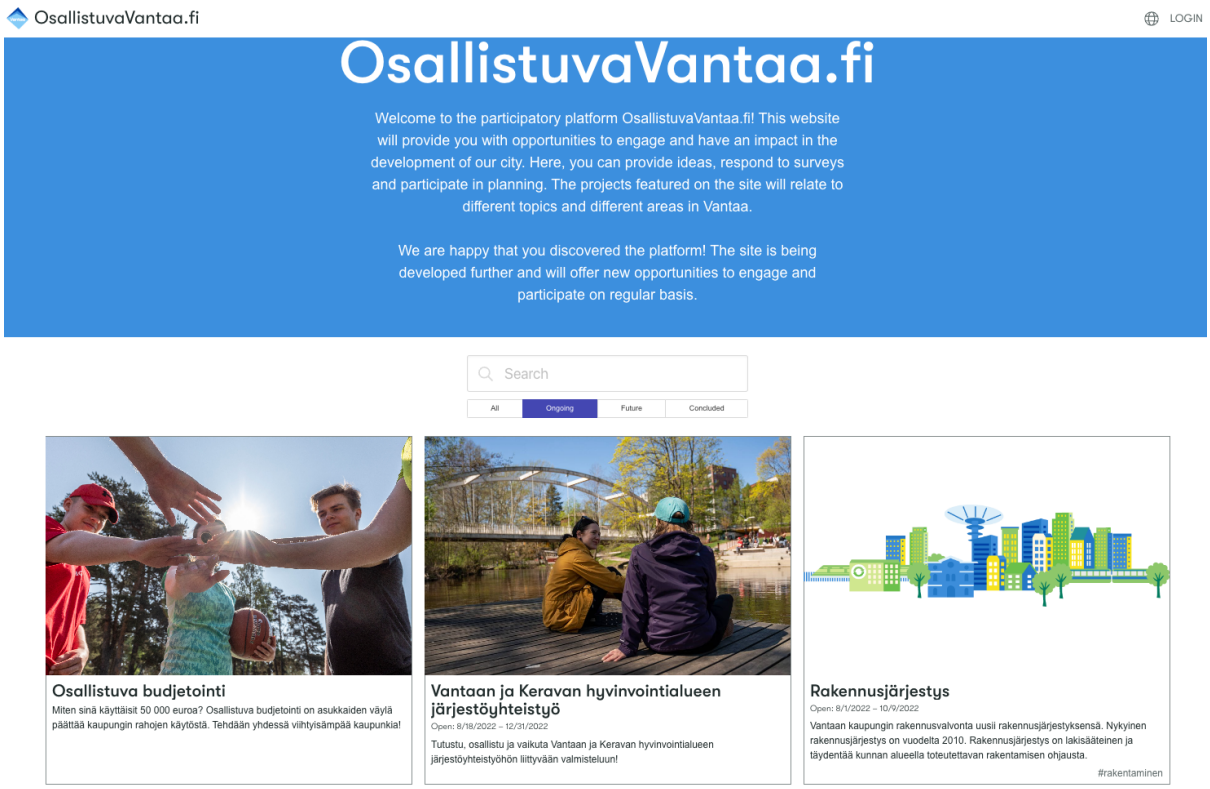

Figure 2. Vantaa has implemented a city-wide Maptionnaire PPGIS platform that spans multiple city departments and offers citizens a single stop for all participatory activities.

The key aim in turning to Maptionnaire's community engagement solution was to harmonise the procedures of community engagement by gathering all the possibilities for influencing city planning within one tool. Moreover, the PPGIS service steered the city away from a project-based approach to public participation by offering a comprehensive platform for continuous engagement with citizens.

Almost all the departments in the City of Vantaa have already started using or are about to implement the Maptionnaire platform. A shared platform for running participatory mapping activities for all the departments provides an opportunity to enhance cooperation internally. In addition, this holistic platform offers Vantaa's residents an easier way to participate in the development of the city because all the information on participation opportunities can now be found in one place. This way, the city appears as a more unified actor to the residents, and the service encourages participation in different kinds of projects.

The introduction of a PPGIS tool to all the departments has expanded potential areas of application of participatory mapping. Traditionally, it is the urban planning department that has traditionally been a typical user of map-based tools. In Vantaa, however, the department of urban culture has also been active in utilising the Maptionnaire Community Engagement Platform. The department of daycare and education as well as Vantaa's healthcare and social services plan to utilise PPGIS tools in their communication activities.

Overall, participatory mapping could only be deployed within the departments that are willing to engage with residents. But it was clear that Maptionnaire's cross-departmental PPGIS tool, as well as collaboration between the departments, largely increased opportunities for citizen participation.

5. Expanding the use of PPGIS tools

With the rise of the information society, new arenas of public participation have emerged, and the increasing number and diversity of stakeholders have made visible the variety of knowledge related to planning issues. The Internet and social media have exploded the number of individuals participating in urban processes. At the same time, the amount of data available for planners has increased, which poses challenges of analysing this data. The growing complexity of planning calls for a more effective and sensitive communicative process design that is achievable with PPGIS tools, such as Maptionnaire.

Urban planning takes place in a sequence of collaborative situations where the need to work together with people from different backgrounds and with a versatile and heterogeneous knowledge base grows dramatically. As these studies have highlighted, PPGIS is one of the available solutions for making urban planning more equitable and inclusive, and participatory mapping should be included in the urban governance toolkit. At the same time, administrators should also encourage the adoption of these tools among NGOs and grassroots organisations in order to avoid an exclusively top-down approach to participation in urban planning.

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